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Teachers in the Woods 2001

Mt. Hood National Forest

Teachers in the Woods
Annual Report

Mt. Hood National Forest
2001

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Executive Summary

In the summer of 2001, the Mt. Hood National Forest partnered with Portland-Metro area middle and high school science and biology teachers, Portland State University's Center for Science Education, the Gifford Pinchot National Forest, the Rogue/Siskiyou National Forest, and the Columbia River Gorge National Scenic Area in a unique Challenge Cost-Share project known as "Teachers in the Woods". The intent of this program is to provide teachers with meaningful learning experiences to accomplish identified monitoring work on National Forests, and to provide a foundation to teach young people about natural resource management on federal lands.

Portland State University partnered with the Forest Service to provide:

- A wildland setting where teachers can learn and implement monitoring techniques,
- An introduction to national forest management issues, and
- An overview of laws and regulations guiding federal actions.

The role of the Mt. Hood National Forest is to assist in the introductory training week, provide additional monitoring training as needed, and supervise and coordinate the teacher monitoring crews.

Twenty-eight teachers participated in the Teachers in the Woods program in 2001. Nine teachers were assigned to the Mt. Hood National Forest. The remaining teachers were assigned to the Gifford Pinchot National Forest or other units. Work crews of two to four teachers assisted Forest Service personnel in monitoring 10 different types of projects on the Mt. Hood National Forest. The projects ranged from collecting data on stream restoration projects to monitoring for signs of lynx presence.

At left: Nancy Cameron, David Woodsworth and Steve Rowland looking over pebble count data on the Clear Fork of the Sandy River.

In 2001, the teachers spent 14 days on the Mt. Hood National Forest. The value of monitoring provided is estimated at $14,537.

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Introduction

In the summer of 2001, the Mt. Hood National Forest partnered with Portland-Metro area middle and high school science and biology teachers, Portland State University's Center for Science Education, the Gifford Pinchot National Forest, the Rogue/Siskiyou National Forest, and the Columbia River Gorge National Scenic Area in a unique Challenge Cost-Share project known as "Teachers in the Woods".

The project began in 1995 when Dr. Marion Dresner of Portland State University (PSU) approached the Mt. Hood National Forest with a concept to involve teachers in the collection and interpretation of monitoring data on National Forests. The pilot project that began in 1995 has now grown to include 28 teachers in 2001. The teachers receive a week of training then participate in monitoring and research activities for four weeks. Monitoring locations are primarily at Forest Service sites in Oregon and Washington, though other land management agencies such as BLM are involved as well. After monitoring, the teachers regroup for a final week to develop curricula for their own classrooms. The teachers also receive graduate credit toward Masters degrees.

The intent of this program is to provide teachers with meaningful learning experiences while accomplishing identified monitoring work on National Forests, and to provide a foundation to teach young people about natural resource management on federal lands.

Of the 28 teachers involved in 2001, nine were assigned to the Mt. Hood National Forest, five to the Gifford Pinchot National Forest and six to the Siskiyou/Rogue River National Forests. The balance were assigned to Pacific Northwest Research at the H.J. Andrews Experimental Forest, the Deschutes National Forest, the Turnbow National Wildlife Refuge, Redwood National Park in northern California, Glacier National Park and Hell's Canyon National Recreation Area. The training week was conducted on the Mt. Hood National Forest at the Portland General Electric Lodge on Timothy Lake.

This report summarizes the activities on the Mt. Hood National Forest in 2001. Participating teachers included: Nancy Cameron (Lincoln High School), Steve Rowland, Joanne Fluvog and Guy Duncan (Lane Middle School), David Woodsworth (Hosford Middle School), Megan Panaras and Bree Woodruff (Marshall High School) and Bill Martin and Tom Carney (Estacada High School). Fran Gray was the coordinater for the Mt. Hood National Forest, and supervised the teachers on the various Mt. Hood National Forest projects.

Funding was provided through a Challenge Cost-Share grant from the Forest Service Region Six Office and a National Science Foundation grant administered by PSU.

Project locations are shown on Figure 1. Monitoring projects are summarized in Table 1. Descriptions of individual project activities follow. A summary of project costs and partner contributions concludes this report.

Training

The Forest Service-hosted training week is an important component of the Teachers in the Woods Program. The teachers are given an accelerated course on management of National Forests. The week begins with an overview of the laws and regulations guiding forest management. This provides the context for discussing development of forest management projects, and more importantly, how the monitoring they will be conducting fits into "the big picture." During this year's training in June, the teachers spent several days with Mt. Hood National Forest and Portland State University staff learning field techniques to monitor the ecology of birds, mammals, amphibians, insects, vegetation and streams.

At left: Wildlife Biologist, Alan Dyck at Portland General Electric Lodge teaching monitoring techniques for scent station surveys.

After the week of training, the teachers began monitoring projects on the Mt. Hood National Forest. Working safely in the woods is a crucial component of the Teachers in the Woods Program. The first day on the forest was spent reviewing operating procedures, radio use, safe behavior in the woods, first aid, and protective clothing and equipment.

Figure 1. Project Site Map

Teachers in the Woods Project Sites for 2001
on the Mt. Hood National Forest

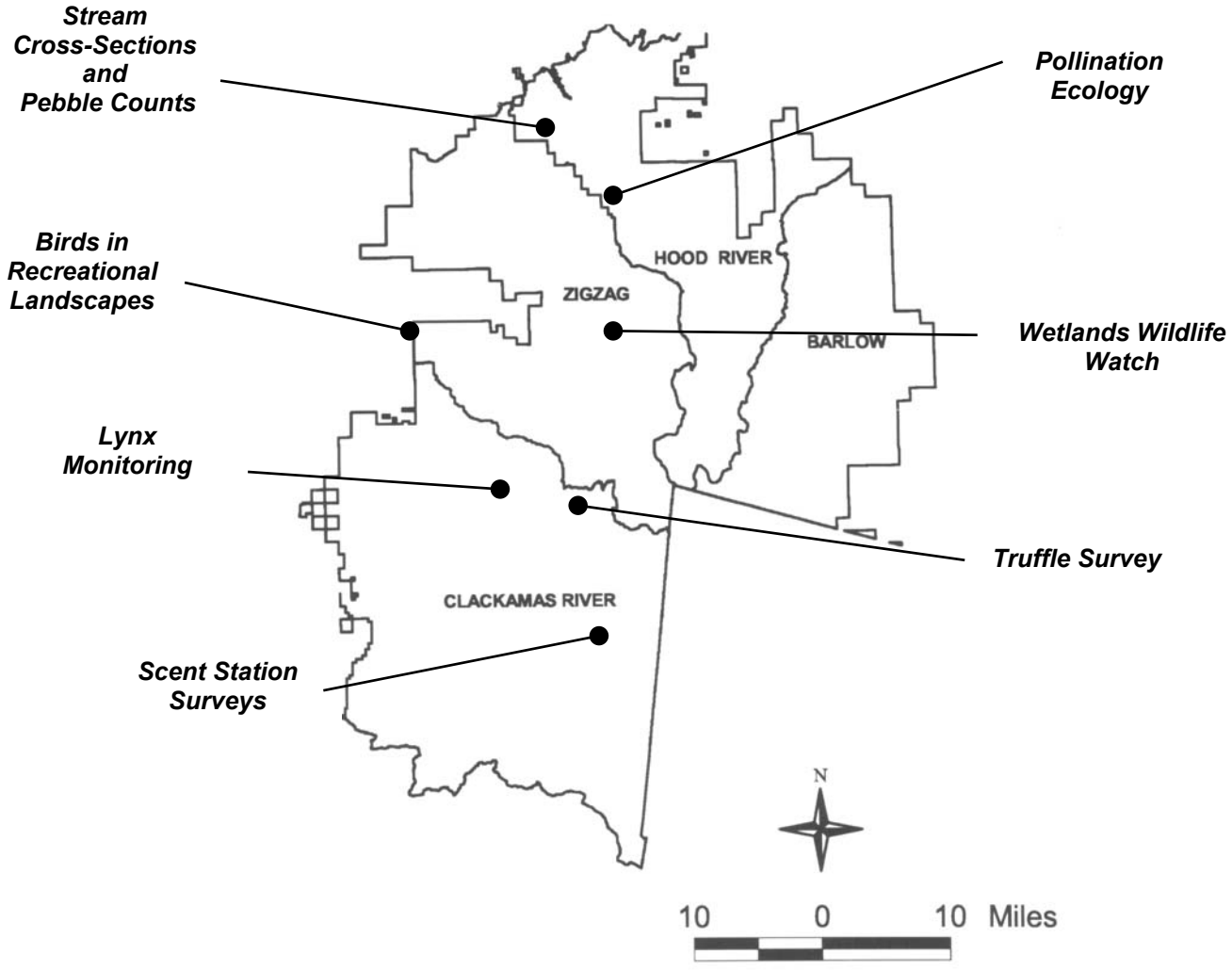


Table 1. Monitoring Projects, Descriptions and Locations

Project Name	Project Description	Project Location
Riparian Planting and Restoration	Restore hardwood forest to area impacted by flooding and agriculture.	The Sandy River Delta, Columbia River Gorge National Scenic Area
Lynx Monitoring Surveys	Survey for lynx on the Mt. Hood National Forest by collecting fur samples using "hair snares."	Olallie Lake, Clackamas River Ranger District
Fish Structure Surveys	Monitor effectiveness of fish structures placed in streams.	Eagle Creek and Tanner Creek, Columbia River Gorge National Scenic Area
Pollination Ecology	Identify various pollinating insects and the plants they associate with.	Government Camp Area and various locations on the Zigzag Ranger District
Scent Station Surveys	Identify the tracks left by any wildlife species.	Olallie Lake, Clackamas River Ranger District
Stream Cross Sections	Monitor stream cross sections laid out in previous years to determine if any changes have occurred.	Clear Fork of the Sandy River, Zigzag Ranger District
Pebble Counts	Measure the size of gravel to determine if spawning habitat is present.	Clear Fork of the Sandy River, Zigzag Ranger District
Truffle Survey Project	Lay out transects, collect and identify any unknown truffle species.	Various locations in the Clackamas River basin
Wetland Wildlife Watch	Monitor for Sandhill cranes and amphibians in pre-selected wetland areas.	Little Crater Lake, Red Top Meadow and Trillium Lake
Birds in Recreational Landscapes	Monitor pre-selected campgrounds and recreational areas for the presence of thrushes.	Campgrounds within the Zigzag Ranger District and Clackamas River Basin

Project Descriptions

In 2001, the teachers conducted a variety of monitoring projects on the Mt. Hood National Forest including fisheries, wildlife, botany and silviculture.

Riparian Planting and Restoration

The 1,400 acre Sandy River Delta is located at the western end of the Columbia River Gorge National Scenic Area, east of Portland, Oregon. Lewis and Clark and other early surveyors reported a mostly forested site, rich in wildlife. Beginning with the original donation land claim in 1851, the site has been subjected to severe disturbances.

In 1991, the Forest Service acquired much of the delta. Through an extensive planning process, including an Environmental Impact Statement, a management plan to reforest the northern and western parts and maintain meadows and seasonal wetlands in the southern portion was adopted.

In July of 2001, seven linear transects, containing 23 hardwood saplings each, were laid out on the south island where big leaf maple, willow, cottonwood and white oak were planted. On the north island, circular plots were established. These plots, each containing 25 to 30 saplings, will be used to study tree survival. In addition, trees from past plantings were also monitored and re-enforced with protective coverings around the bases to help increase survival.

At Left: Nancy Cameron and Steve Rowland placing transects for riparian planting on the Sandy River Delta.

Lynx Monitoring

The Mt. Hood National Forest sits on the southern edge of lynx range. Within the Mt. Hood National Forest, lynx habitat has been identified as well as their favorite food source - the snowshoe hare. Lynx monitoring stations were set up to determine if lynx are present in the forest. Seven transects containing five plots each were laid out. These 35 plots each contained one “hair snare.” Three of the hair snares produced animal fur samples. The samples are currently undergoing lab analysis to positively identify the species present.

Fish Structure Surveys

In the 1920's, roads were placed along Tanner Creek and Eagle Creek to provide access to diversion dams. These roads caused erosion in the riparian area and loss of in-stream fish habitat. The flood of 1996 caused further erosion.

During the summer of 2000, restoration work began that included placing fish structures on both Tanner and Eagle creeks. In July of 2001, a survey was conducted to determine the effectiveness of these structures. The stream depth in pools was recorded and photos of the structures were taken. Though some of the structures had washed out from high winter flows, the remaining fish structures created deep pool habitat and cover for fish.

At right: Steve Rowland measuring water depth in a pool on Tanner Creek

Pollination Ecology

The purpose of the pollination ecology study is to document the presence of various insects and the plants they pollinate. Of the many insects identified during the study in July of 2001, special interest was given to several species of specialist-feeding bees: a *Panurginus* on *Potentilla* and *Spiraea,* (possibly a previously undescribed species) *Dufourea* on *Calochortus*, (probably only collected two or three times before in Oregon or Washington) and an *Andrena* on *Polemonium* (found only at Timberline). Also of interest is the observation of extreme success of a *Lasioglossum* species in the Mt. Hood Meadows area where the bee has taken advantage of the many areas of bare ground present in the ski area.

Scent Station Surveys

Scent stations allow for monitoring of various wildlife species within a given area. The stations are circular sections of loosened, level dirt with bait (sardines in this case) placed at the center. The stations are designed so that animals investigating the bait will leave well-formed tracks in the soft soil. Forty scent stations were placed on six transects within the Mt. Hood National Forest. The stations were monitored every day for one week. Two big cat tracks, probably cougar, were found as well a number of tracks from small mustelids (e.g. weasels, skunks, and martins).

At Left: Setting up scent stations in the Olallie Lake area.

Stream Cross Sections

As part of the monitoring taking place on the Clear Fork of the Sandy River, stream cross sections have been on-going since 1994. Disturbances like flooding can cause the stream channel to change its shape, thus affecting the way water passes through it. Bank erosion from flooding can cause in-stream silting, covering up fish spawning gravel and causing damage to fish gills and the ability for fish to process oxygen. Stream cross section measurements help to monitor stream channel conditions and changes that may be taking place. Twelve stream cross section measurements were taken in July of 2001. This data will be compared to that of past years to help evaluate current conditions on Clear Fork, and the effectiveness of post-flood restoration work being conducted.

Pebble Counts

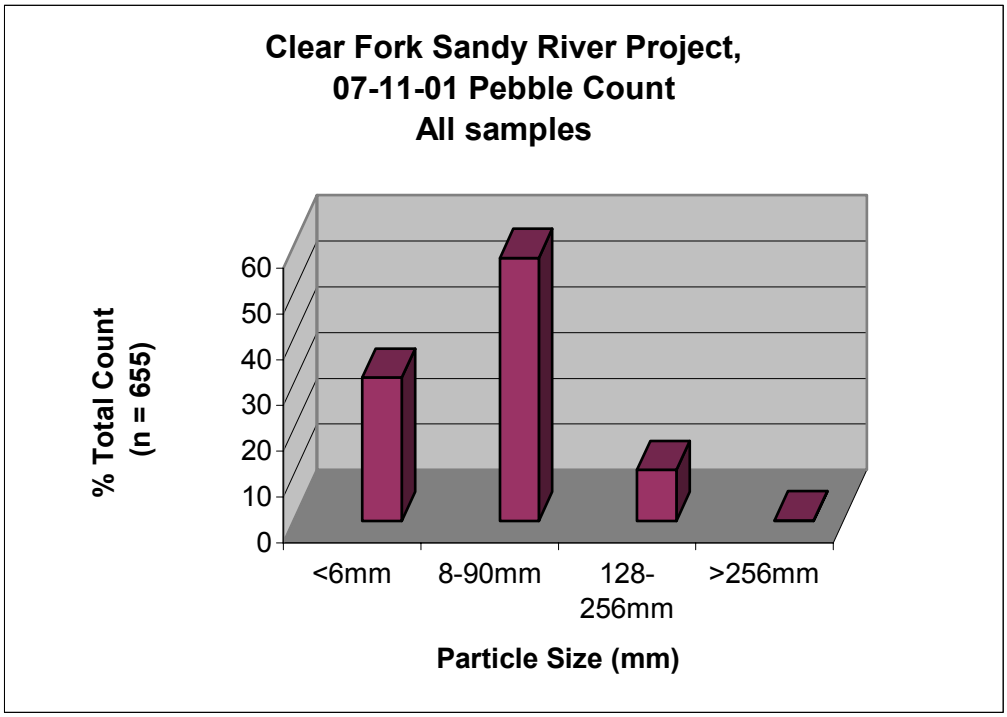
The Clear Fork of the Sandy River has been impacted by several flooding events. Because of this, monitoring on a low gradient, quarter-mile reach of this stream, beginning a half mile up from the mouth, has been conducted since 1994. Since the flood of 1996, the stream has shifted its course. In some sections, the stream has cut an entirely new channel. As a result, habitat units such as pools and riffles, have migrated. By measuring the size of the gravel present in these units, it can be determined what amount of spawning habitat for fish is still present and what changes have occurred. Pebble count data was collected over 12 sections of the stream in July of 2001. This data showed high quantities of silt and fines. The results are shown in Table 2.

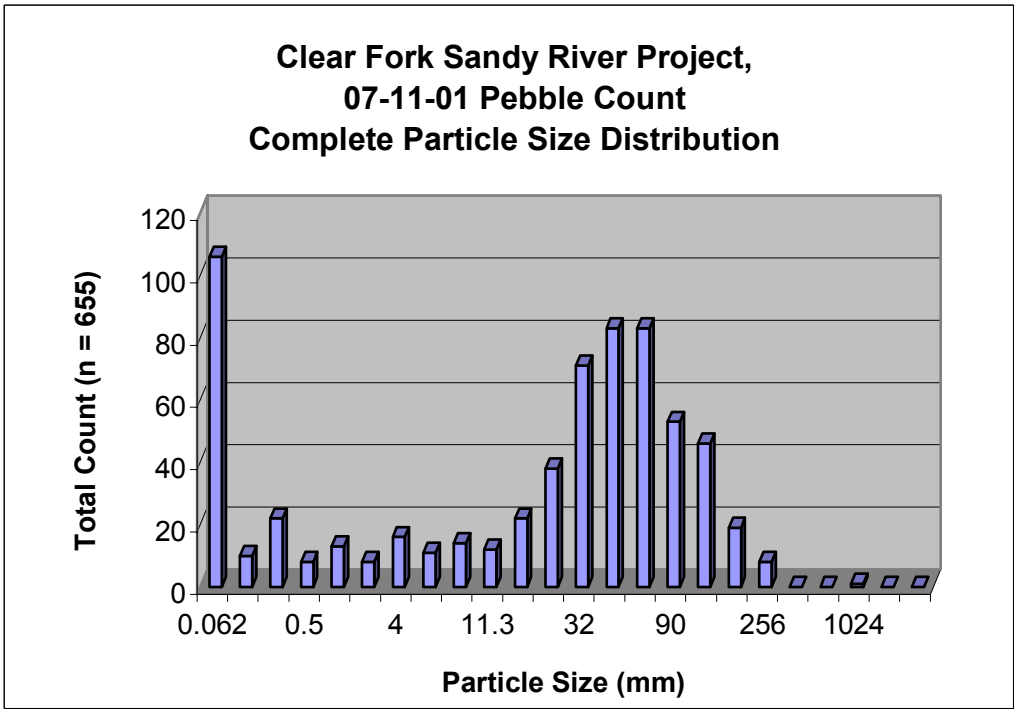
At Right: David Woodsworth, Nancy Cameron and Steve Rowland conducting pebble counts on the Clear Fork of the Sandy River.

Truffle Survey Project

The truffle survey project took place in the Clackamas River Ranger District. It involved digging rectangular plots in pre-determined areas and collecting samples of any species found. Several *Rhizopogons* and a possible *Macowanites* (a species with special survey requirements) were identified. In addition, *Craterellus tubaeformis* (winter chanterelle) and *Elaphomyces granulatus* (common deer truffle) were found. All of these, along with some other unidentified truffles, were sent to the Forest Sciences Lab at Oregon State University for conclusive identification.

Figure 2. Pebble Count Data from Teachers in the Woods 2001





Wetland Wildlife Watch

Wetland Wildlife Watch is an on-going wildlife study conducted as a partnership between the U.S. Forest Service and the Northwest Ecological Research Institute. During July of 2001, monitoring for sandhill cranes and various amphibian species took place at Little Crater Meadow, Trillium Lake, and Red Top Meadows. Any incidental bird sightings were also recorded. Though it rained the entire week making bird observations rare, Northern pintail duck, ring-necked duck, Virginia rail, Hutton's vireo, hermit warbler, and Swainson's thrush were sighted. The results are shown in Table 3.

Birds In Recreational Landscapes

This project is in conjunction with a study conducted by Cornell University called "Birds in Forested Landscapes." On the Mt. Hood National Forest, the project has been refined to reflect the impacts that recreational activities, such as camping and hiking, have on three species of thrushes. Swainson's thrush, hermit thrush and varied thrush are all experiencing population changes in various locations around the country.

The Birds in Recreational Landscapes protocol involves playing tapes of thrush songs and calls, and monitoring the species' response. The survey was conducted in six campgrounds on the Mt. Hood National Forest. Two new additional sites were also set up for continued monitoring in years to come. In some campgrounds, one or all of the thrush species were present. In the more heavily used campgrounds, however, the birds were absent. In addition, vegetation data was collected at three locations in each campground to correlate the species preferred habitat. See Table 4.

At left: Joanne Fluvog and Guy Duncan running the Birds in Recreational Landscapes protocol at Bald Mountain.

Figure 3. Wetland Wildlife Watch Observations

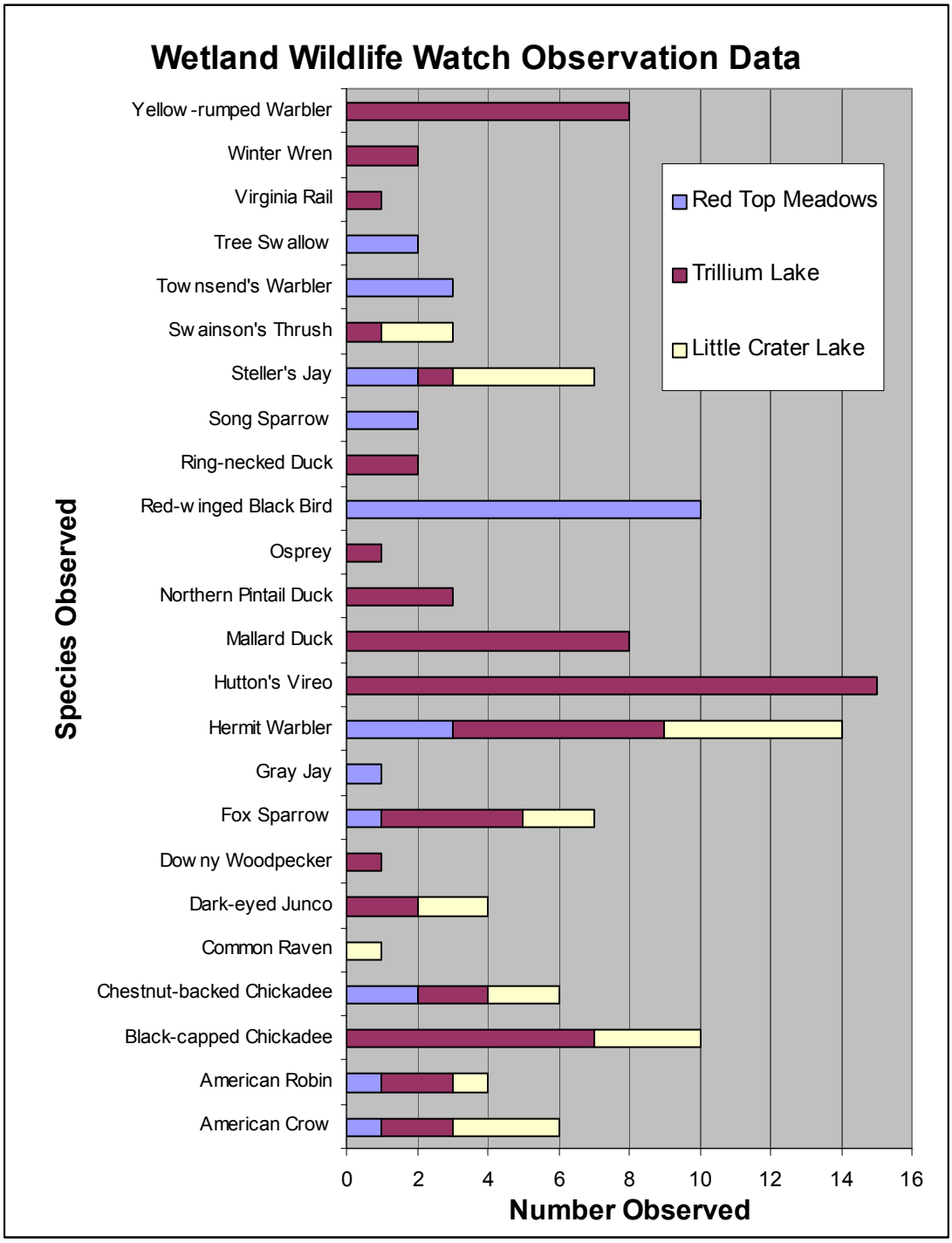


Table 2. Birds in Recreational Landscapes

Thrush Observation Data

	Varied Thrush	Swainson's Thrush	Hermit Thrush
Frog Lake Campground	**R**	**-**	**-**
Camp Creek Campground	**-**	**R**	**-**
Tollgate Campground	**R**	**R, E, C**	
Oak Fork Campground	**-**	**-**	**-**
Pine Point Campground	**-**	**-**	**-**
Little Crater Lake Campground	**-**	**R**	**C**
Roaring River Campground	**R**		
Top Spur Trail	**R, E, C**	**R, E**	**C**

R = Thrush observed at center of campground (recreational area)
E = Thrush observed 500 ft from the area of impact at campground (edge point)
C = Thrush observed 1500 ft from the area of impact at campground (control point)

Program Contribution Overview

Figure 4 represents a breakdown of the total program costs. Detailed cost information can be found in Appendix A. Figure 5 represents a breakdown of the costs of the individual projects. Detailed information can be found in Appendix B.

Figure 4. Total Cost Breakdown for 2001 Teachers in the Woods Program

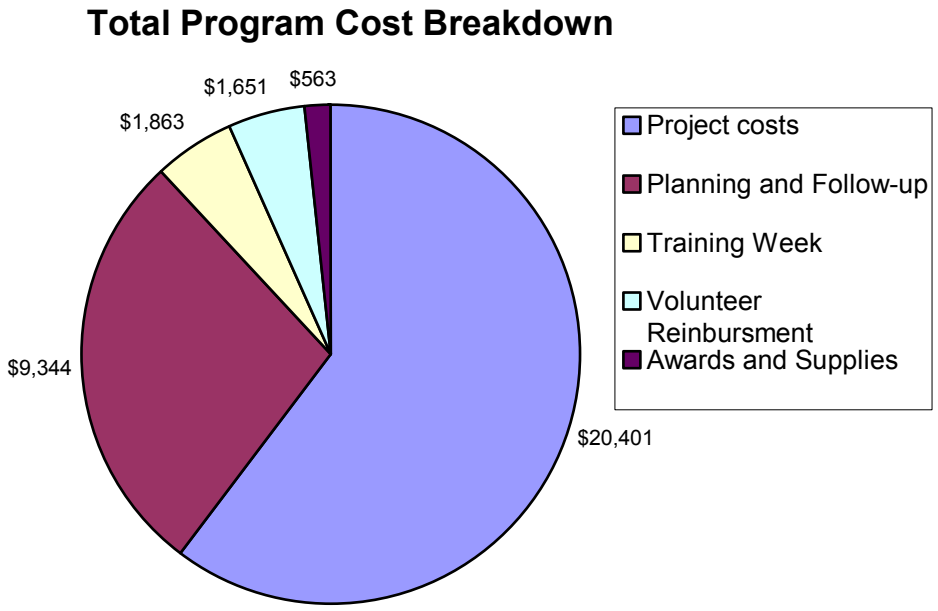


Figure 5. Cost breakdown of individual projects for the 2001 Teachers in the Woods Program

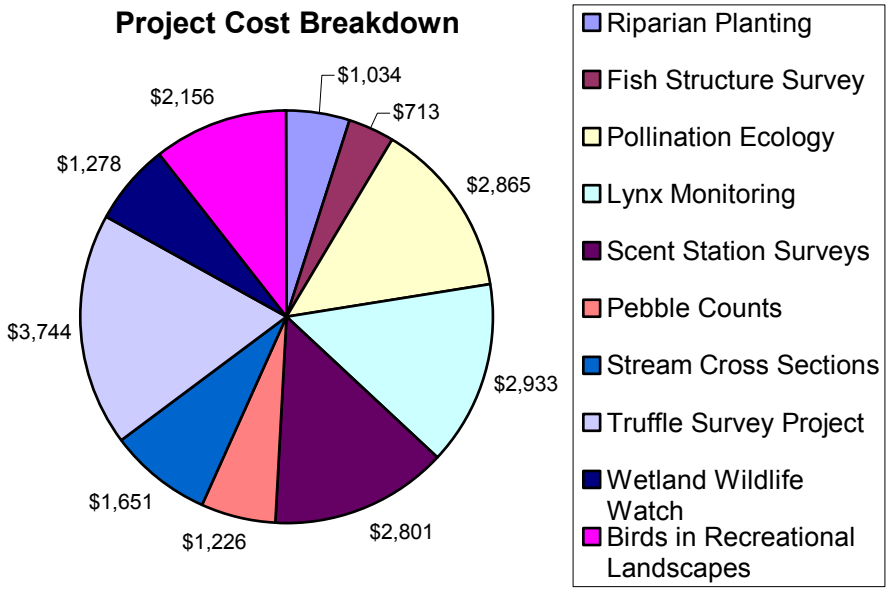


Table 3. Mt. Hood National Forest 2001Teachers in the Woods Program Value

	Total
Teacher Contribution	$14,537
Mt. Hood National Forest Contribution	$22,615
Mt. Hood National Forest Cost	$20,964
Volunteer Reimbursement	$1651
Total Program Contribution	$37,152

Appendix A

Project Costs and Teacher Contributions

Estimated costs for the Mt. Hood National Forest employees, vehicles, supplies, as well as teacher contributions, are displayed by project. Teacher contributions were estimated by assigning the equivalent value of their time as paid biological technicians.

Planning and Follow-up

Position	GS Level	Hours	Total
Fisheries Bio Technician	07	330	$5198
Forest Fish Biologist	12	24	$777
Fish Biologist	9	8	$206
Forest Wildlife Biologist	12	24	$834
Forest Botanist	11	8	$220
Forest Partnership Coordinator	12	30	$1076
Visual Information Assistant	9	40	$1035
Mt. Hood National Forest Cost			**$9344**

Training Week

Position	GS Level	Hours	Total
Teachers in the Woods Coordinator	07	20	***$315***
Forest Fish Biologist	12	24	$777
Forest Wildlife Biologist	12	16	$556
Forest Supervisor	15	4	$215
Total Mt. Hood National Forest Cost			**$1863**

This table shows the total program value based on costs and contributions of the Teacher Volunteers and the Mt. Hood National Forest.

Teachers in the Woods Program Value

	Total
Teacher Volunteer Contribution	**$14,537**
Mt. Hood National Forest Contribution	**$22,615**
Mt. Hood National Forest Project Costs	$20,401
Volunteer Reimbursement	$1651
Non-monetary awards (17 embroidered vests)	$510
Supplies (Write-in-the-Rain notebooks, Sharpies)	$53
Total Program Contribution	**$38,706**

***** *Includes planning and follow-up, training, and projects.*

Appendix B

Projects

Riparian Planting
(2 teachers, 2 10 hr days)

Position	GS Level	Hours	Total
Botanist	11	20	***$453***
Forest Service Vehicle (2 days)			$71
Mt. Hood National Forest Contribution			**$524**
Teacher Contribution: Bio-Technicians (2)	05	40	**$510**
Total Project Costs:			**$1034**

Lynx Monitoring
(2 teachers, 7 10 hr days; 2 teachers 3 10 hr days)

Position	GS Level	Hours	Total
Wildlife Bio-tech	**07**	**20**	$315
Forest Service vehicle (1 day)			$68
Mt. Hood National Forest Contribution			**$383**
Teacher contribution: Bio-Technicians (4)	05	200	**$2550**
Total Project Cost:			**$2933**

Fish Structure Survey
(2 teachers, 2 10 hr days)

Position	GS Level	Hours	Total
Fisheries Biologist	11	6	***$168***
Forest Service Vehicle (1 day)			$35
Mt Hood National Forest Contribution			**$203**
Teacher Contribution: Bio-Technicians (2)	05	40	**$510**
Total Project Costs:			**$713**

Pollination Ecology
(4 teachers, 3 10 hr days; 2 teachers, 1 10 hr day; 1 teacher, 2 10 hr days; 1 teacher, 4 10 hr days)

Position	GS Level	Hours	Total
Biological Technician	07	20	***$315***
Mt. Hood National Forest Contribution			**$315**
Teacher Contribution: Bio-Technicians (8)	05	200	**$2550**
Total Project Cost:			**$2865**

Scent Station Surveys
(4 teachers, 4 10 hr days)

Position	GS Level	Hours	Total
Forest Wildlife Biologist	11	20	***$695***
Forest Service Vehicle (2 days)			$66
Mt Hood National Forest Contribution			**$761**
Teacher Contribution: Bio-Technicians (4)	05	160	**$2040**
Total Project Costs:			**$2801**

Stream Cross Sections
(2 teachers, 6 10 hr days)

Position	GS Level	Hours	Total
Fisheries Biologist	11	4	***$112***
Forest Service Vehicle (1 day)			$9
Mt Hood National Forest Contribution			**$121**
Teacher Contribution: Bio-Technicians (2)	05	120	**$1530**
Total Project Costs:			**$1651**

Pebble Counts
(3 teachers, 1 10 hr day; 2 teachers, 2 10 hr days)

Position	GS Level	Hours	Total
Biological Technician	07	20	***$315***
Forest Service Vehicle (2 days)			$18
Mt Hood National Forest Contribution			**$333**
Teacher Contribution: Bio-Technicians (5)	05	70	**$893**
Total Project Costs:			**$1226**

Truffle Survey Project
(2 teachers, 2 10 hr days; 2 teachers 4 10 hr days; 1 teacher 1 10 hr day)

Position	GS Level	Hours	Total
Forest Botanist	11	40	***$1100***
Botanist	09	40	$905
Forest Service Vehicle (4 days)			$81
Mt Hood National Forest Contribution			**$2086**
Teacher Contribution: Bio-Technicians (5)	05	130	**$1658**
Total Project Costs:			**$3744**

Wetland Wildlife Watch

(3 teachers, 3 10 hr days)

Position	GS Level	Hours	Total
Wildlife Biologist	09	5	***$131***
Mt Hood National Forest Contribution			**$131**
Teacher Contribution: Bio-Technicians (3)	05	90	**$1148**
Total Project Costs:			**$1278**

Birds in Recreational Landscapes

(3 teachers, 1 10 hr day; 3 teachers, 2 10 hr days)

Position	GS Level	Hours	Total
Biological Technician	07	60	***$945***
Forest Service Vehicle (6 day)			$63
Mt Hood National Forest Contribution			**$1008**
Teacher Contribution: Bio-Technicians (6)	05	90	**$1148**
Total Project Costs:			**$2156**